2023 MULTIDISCIPLINARY CONFERENCE ON SUSTAINABLE DEVELOPMENT
Timisoara, 25-26 May

UPDATED HOST PLANT RANGE FOR PHYTOPHAGOUS INSECT COREUS MARGINATUS (HEMIPTERA:COREIDAE) IN ROMANIA

Ioana GROZEA, Levente MOLNAR, Alin CARABET, Ramona STEF, Monica BUTNARIU, Snejana DAMIANOV, Adrian GROZEA, Ana Maria VIRTEIU
University of Life Sciences" King Mihai I" from Timisoara, Romania

Abstract:

In recent years, in the parks and gardens of urban and rural areas in Romania, the harmful species Coreus marginatus (Linnaeus, 1758) has been often observed. After analyzing the information set, we found that there is little information at the national and even international level about the phytophagous character and its host plants. Until recently, the species was not a problem. That's why we proposed that through the present work, we would see the causes that led to the increase in its population.

Introduction

The hemipter *Coreus marginatus* (Linnaeus, 1758) is also known as Cimex marginatus (older name) or dock bug (WILDLIFE INSIGHT, 2012). It is a true bug from Coreidae family, belonging genus Coreus (ALDRICH, 1988). It is known that order Hemiptera are frequent in various areas (GROZEA, 2015), exceeding 42,000 species worldwide (HENRY, 2009). It originates from Europe, where it has a wide distribution, also in Asia, but also in Africa, where it has only been reported in Algeria until now.

Material and method

In order to identify the presence of the Coreus marginatus species, we chose 4 areas in Western Romania (west and south-west), actually representing 4 localities in 3 counties (Timis, Arad and Caras Severin). Each locality was located at a different altitude, from 95 m to 645 m in order to have an image of the favourable areas. Also, the type of space monitored was different, so the following were considered: mixed garden, park, green area and vegetable garden and fruit trees.

About 2 plants from each plant species (5 plant species/area, 5x2=10 plants/area/locality) were monitored, bimonthly for 8 months, in 2021-2022.

The target stages were the hibernating adults from April to the end of May, the nymphs in the 5 stages, from June-August and the new adults from August-October. Those observed were analyzed and quantified at the Phytosanitary Diagnosis and Expertise Laboratory in USVT.

Results and discussions

From the observations made during 2021-2022, we found that the species Coreus marginatus was present in all the specially chosen places at various altitudes (figure 1). Thus, at the lowest altitude (95 m) more individuals were observed (n=69), while at the highest altitude (645 m) there were only 6 individuals. Anyway, the evolution was a gradual decline, where at 116 m there were 21 ind. and at 170, only 9 ind.

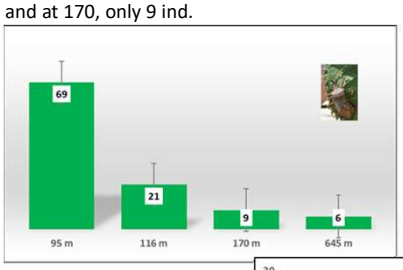

Fig. 1. The evolution of Coreus marginatus at various altitudes

Looking at figure 2, it can be seen that most dock bugs (in adult form) (n=24) were quantified on Rosa sp plants. and Chaenomeles japonica. These were followed by Lavandula sp., where also the presence of Coreus m. was considerable (n=20).

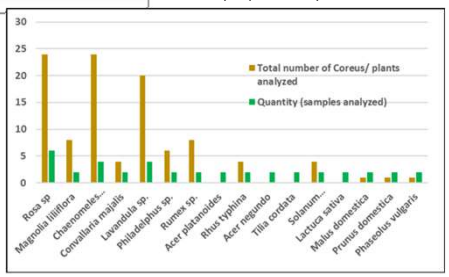

Fig. 2. The population level of the *Coreus marginatus* species on the variety of plants analyzed

It was also observed on other plant species, but at a lower level, Magnolia liliiflora, Rumex sp. (n=8), Philadelphus sp. (n=6), Convallaria majalis, Rhus typhina, Solanum lycopersicum (n=4), Phaseolus vulgaris, Malus domestica and Prunus domestica (n=1) (fig.3).

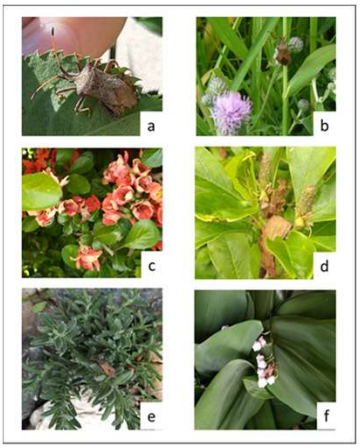

Fig. 3. Plants on which nymphs and adults of Coreus marginatum L. were observed, namely: a. Rosa sp. b. Cirsium arvense; c. Chaenomeles japonica; d. Magnolia liliiflora; e. Lavandula sp. and f. Convallaria majalis (photos taken by Grozea during period of 2021-2022)

Dock bugs were not observed on all the species (plants) under analysis (n=0.0) and related data can be found in table 2.

Leaf attack symptoms, characteristic of dock bugs, were identified only on the species of Chaenomeles (Np=6) and Rosa (Np=2) (figure 4), while no damage was observed on the other analysed plants.

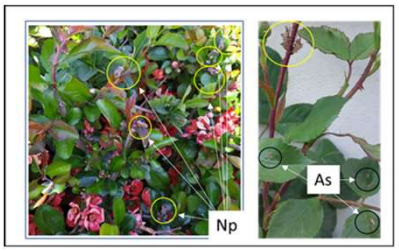

Fig 4. Levels of frequency and attack on plants: Np-number of individuals on plant; As- attack with symptom (photos taken by Grozea during period of 2021-2022)

Table 1

The analyzed plant	Frequency/plant
Rosa sp	5
Magnolia liliiflora,	2
Chaenomeles japonica	6
Convallaria majalis	2
Lavandula sp.	5
Philadelphus sp.	3
Rumex sp.	4
Acer platanoides	0
Rhus typhina	2
Acer negundo	0
Tilia cordata	0
Solanum lycopersicum	2
Lactuca sativa	0
Malus domestica	0.5
Prunus domestica	0.5
n	15
X	2.13
s	2.06
Sx	0.53
CV	96.42

Conclusions

Coreus marginatus is a potentially harmful species for various geographical areas, especially for warm ones, a fact demonstrated by its higher frequency at low altitudes where temperatures are higher. In temperate areas, sheltered places near houses (as gardens) can be favourable for passing the winter. Also, the variety of plants in an area can influence the adaptation to new species and implicitly the multiplication of the pest. Being relatively new for our country, it is obvious that in the coming years we will witness an expansion and major damages.

Acknowledgement

We express our thanks to the owners of the gardens who allowed us to make the observations and to those who manage the parks and green spaces..

Bibliography (selective)

ALDRICH J. R. (1988). Chemical ecology of the Heteroptera. Annual Review of Entomology 33:211–238.
GROZEA I. (2015). Entomologie generala, Editura Eurobit, 155 p.
WILDLIFE INSIGHT (2012). Squashbug: Coreus marginatus or Dock Bug. Wildlife Insight, http://www.wildlifeinsight.com/6349/squashbug-coreus-marginatus-or-dock-bug/ (consulted on April 24, 2023).
HENRY T.J. (2009). Biodiversity of Heteroptera, In R.G. Foottit, and P.H. Adler (ed.), Insect Biodiversity: Science and Society. Wiley-Blackwell, p. 223–263.